Amendments to the Specification:

Please replace the paragraph beginning at page 7, line 6, with the following amended paragraph:

In another particular embodiment, the first and second lens components of the optical system are positioned ~~substantionally~~ <u>substantially</u> confocally.

Please replace the paragraph beginning at page 7, line 8 with the following amended paragraph:

In a different particular embodiment, the first lens component of the optical system is placed at a distance <u>substantially</u> ~~substantionally~~ equal to the focal length of the first lens component from the transverse scanning surface, while the distance between the first and second lens components of the optical system is diverse from that corresponding to a <u>substantially</u> ~~substantionally~~ confocal position of the lens components by a value $\delta 1$, which is related with the focal length $F1$ of the first lens component and the radius of curvature R of the transverse scanning surface by the following relation:

$$\delta 1 \cong (F1)^2 / R.$$

Please replace the paragraph beginning at page 7, line 16 with the following amended paragraph:

In another particular embodiment, the first lens component of the optical system is offset by a distance $\delta 2$ from the position at which the distance from the first lens component to the transverse scanning surface is <u>substantially</u> ~~substantionally~~ equal to the focal length $F1$ of this lens component, while the distance between the first and second lens components of the optical system is diverse from the distance corresponding to the <u>substantially</u> ~~substantionally~~ confocal position of these lens components by a value $\delta 3$, which is given by the relation:

$$\delta 3 \cong (F1)^2 / (R + \delta 2).$$

Please replace the paragraph beginning at page 9, line 1 with the following amended paragraph:

In another particular embodiment, the first and second lens components of the optical system are positioned substantially ~~substantionally~~ confocally.

Please replace the paragraph beginning at page 9, line 3 with the following amended paragraph:

In a different particular embodiment, the first lens component of the optical system is placed at a distance substantially ~~substantionally~~ equal to the focal length of the first lens component from the transverse scanning surface, while the distance between the first and second lens components of the optical system is diverse from the distance corresponding to the substantially ~~substantionally~~ confocal position of the lens components by a value $\delta 1$, which is related to the focal length $F1$ of the first lens component and the radius of curvature R of the transverse scanning surface by the following relation:

$$\delta 1 \cong (F1)^2 / R.$$

Please replace the paragraph beginning at page 9, line 11 with the following amended paragraph:

In another particular embodiment, the first lens component of the optical system is offset by a distance $\delta 2$ from the position at which the distance from the first lens component to the transverse scanning surface is substantially ~~substantionally~~ equal to the focal length $F1$ of this lens component, while the distance between the first and second lens components of the optical system is diverse from the distance corresponding to the substantially ~~substantionally~~ confocal position of these lens components by a value $\delta 3$, which is given by the relation:

$$\delta 3 \cong (F1)^2 / (R + \delta 2).$$

Please replace the paragraph beginning at page 10, line 3 with the following amended paragraph:

In a particular embodiment when using a one-coordinate substantially ~~substantionally~~ linear trajectory of transverse scanning the second lens component is offset both in a direction

that is orthogonal to the direction of transverse scanning, and in a direction that is orthogonal to the direction of propagation of the low coherence optical radiation.

Please replace the paragraph beginning at page 10, line 18 through page 11, line 17 with the following amended paragraph:

In the present invention a constant propagation time is provided for the low coherence optical radiation propagating from a given point of the transverse scanning surface, i.e., from the end face of the distal part of the optical fiber, which is aligned with the transverse scanning surface, to a corresponding conjugate point of the image plane. That assures exclusion of the transverse scanning related aberration of the optical path length for the low coherence optical radiation directed towards the object. This is achieved by designing the optical system comprising at least two lens components with positive focal power, which are placed substantially ~~substantionally~~ confocally. Therewith, both for a flat transverse scanning surface and a transverse scanning surface with a curvature the first lens component can be positioned at a distance equal to the focal length of this lens component from the transverse scanning surface, as well as at a distance somewhat greater or smaller than its focal length. In the case when the transverse scanning surface has a curvature, additional aberration induced by this curvature is compensated by a corresponding induced aberration with an opposite sign. In addition, performing the longitudinal scanning by varying the optical path length for the low coherence optical radiation from the transverse scanning surface to the optical system and, consequently, to the object as well, ensures a corresponding shift of the focusing position of the low coherence optical radiation during longitudinal scanning. A constant propagation time for the low coherence optical radiation propagating from a given point of the transverse scanning surface, i.e., from the end face of the distal part of the optical fiber, to a corresponding conjugate point of the image plane, and the particular above mentioned way of longitudinal scanning, being jointly implemented in this invention, provide alignment of the focusing position of the low coherence optical radiation with the position of the coherence gate and, consequently, their simultaneous movement. This avoids the necessity to use additional synchronizing devices required in prior art technique. This implementation ensures a high transverse resolution of the method and apparatus carrying out this method. Orienting the normal line to the outer surface of the output window of the optical fiber probe at an angle to the direction of incidence of the low coherence optical radiation on said outer surface,

which exceeds the angle of divergence of the low coherence optical radiation in the place of its intersection with said outer surface, prevents the reflected radiation from being backscattered into the optical fiber. Particular types and shapes of the second lens component characterize the invention in its particular specific embodiments.

Please replace the paragraph beginning at page 17, line 21 through page 18, line 6 ith the following amended paragraph:

In particular, when the transverse scanning surface 28 is flat, the first lens component 19 and second lens component 20 of the optical system 15 are placed substantially ~~substantionally~~ confocally (Fig. 11, Fig. 12 and Fig. 13). Fig. 11 illustrates a case when the first lens component 19 is placed at a distance that is substantially ~~substantionally~~ equal to the focal length *F1* of this component from the surface 28; Fig. 12 illustrates a case when the first lens component 19 is placed at a distance *d1* that is slightly greater than the focal length *F1* from the scanning surface 28; and in Fig. 13 the first lens component 19 is placed at a distance *d2* that is slightly less than the focal length *F1* from the surface 28. When a scanning surface 39 has a curvature (Fig. 14), the first lens component 19 of optical system 15 is placed at a distance that is substantially ~~substantionally~~ equal to the focal length *F1* of this lens component from the transverse scanning surface 39. In this case, the distance between the first lens component 19 and second lens component 20 of the optical system15 is diverse from the distance corresponding to the substantially ~~substantionally~~ confocal position of lens components 19 and 20 of the optical system 15 by a value $\delta 1$ related to the focal length *F1* of the first lens component 19 and the radius of curvature *R* of the transverse scanning surface 39 by the following relation:

$$\delta 1 \cong (F1)^2 / R.$$

Please replace the paragraph beginning at page 18, line 7 with the following amended paragraph:

In another modification, when the scanning surface 39 has a curvature (Fig. 15), the first lens component 19 of the optical system15 is offset by a distance $\delta 2$ from the position at which the distance from the first lens component 19 to the transverse scanning surface 39 is substantially ~~substantionally~~ equal to the focal length *F1* of the first lens component 19, while the distance between the first and the second lens components 19, 20 of the optical system 15

is diverse from the distance corresponding to the substantially ~~substantionally~~ confocal position of lens components 19 and 20 by a value $\delta 3$, which is given by the following relation:

$$\delta 3 \cong (F1)^2 / (R + \delta 2).$$

Please replace the paragraph beginning at page 20, at line 18 with the following amended paragraph:

Fig. 11, Fig. 12 and Fig. 13 illustrate the construction of an image by means of the invention in a case of a flat transverse scanning surface 28. Lines 36, 37, and 38 in the image plane in Fig. 11, Fig. 12 and Fig. 13, respectively, correspond to a point locus, to which the propagation time and hence the optical path length has the same value for the low coherence optical radiation passing to the object 11 from corresponding conjugate points disposed at various off axis positions in the flat transverse scanning surface 28. It can be seen from the figures that when the first lens component 19 and second lens component 20 of the optical system 15 are placed substantially confocally, the lines 36, 37, and 38 have no curvature. The later stays true when the first lens component 19 is placed at a distance substantially equal to the focal length $F1$ of this lens component from the surface 28 (Fig. 11), as well as at a distance $d1$ greater than the focal length $F1$ (Fig. 12), or at a distance $d2$ smaller than the focal length $F1$ (Fig. 13) from the surface 28. Depending on the position of the first lens component 19, lines 37 and 38 are shifted to this or that direction relative the position of line 36 by some value $\delta 4$.

Please replace the paragraph beginning at page 21, line 1 with the following amended paragraph:

Figures 14, 15 illustrate the construction of an image by means of the invention in a case when the transverse scanning surface 39 has a curvature. A line 40 in the image plane corresponds to a point locus, to which the propagation time and hence the optical path length has the same value for the low coherence optical radiation passing to the object 11 from corresponding conjugate points disposed at various off axis positions in the transverse scanning surface 39. It is seen from these figures that the line 40 has no curvature. Provided the aforementioned conditions of mutual positioning of the first lens component 19 and the second lens component 20 are fulfilled, the line 40 has no curvature when the first lens

component 19 is placed at a distance ~~substantionally~~ substantially equal to the focal length F1 of this lens component from the surface 39, as well as at a greater or smaller distance than its focal length F1.